



# UNIVERSITY OF CALIFORNIA.

## AGRICULTURAL EXPERIMENT STATION.

BERKELEY, CAL.

E. W. HILGARD, Director.

BULLETIN NO. 78.

### *Report on the Establishment of Outlying Stations.*

President E. S. Holden—DEAR SIR: I respectfully submit the following considerations and statements concerning the organization of the Agricultural Experiment Station work under the provisions of the "Hatch Bill," which has now been made effective by the appropriation that has lately passed Congress:

The Experiment Station work that for 10 years past has been carried on so far as the funds of the University, and the State appropriations made from time to time, have permitted, is entirely of the character contemplated by the "Hatch Experiment Station Bill," and the interest it has excited in this State has not only found expression in the increased appropriations consecutively made for its support by the Legislature, but also by the desire manifested for its expansion so as to provide adequately for the varied needs of the widely different climatic regions of California. It being manifestly impossible to represent by the work of any single station the conditions of a State co-extensive with the section of the Atlantic Coast reaching from Cape Cod to the Savannah river, the establishment of *outlying Culture Experiment Stations* has long been urged, and to some extent the demand has been supplied by the annual distribution of seeds and living plants throughout the State, to persons applying for them and willing to make trials and report thereon to the Agricultural Department. The last annual report records the outcome of a large number of experiments thus initiated; yet it cannot be denied that, considering the large number of persons to whom distributions have been made, the responses have been relatively few and too often of a very unsatisfactory character, owing to the unavoidable want of necessary attention on the part of the distributee. At all events, these results have served to emphasize the need of Regional Culture

Stations under competent supervision, and the desire of the agricultural public in that direction has repeatedly found utterance in resolutions of the State Grange, State conventions and other public meetings. Those passed at the last meetings of these bodies are especially emphatic, and the support thus given has doubtless aided greatly in the passage of the appropriation act through Congress.

Our general policy in regard to this subject being thus understood, the principles that should guide in the establishment of such culture experiment stations require a brief discussion.

In determining the proper location of the outlying stations, their distinctive objects, and relation to the central station at Berkeley, should be kept clearly in view. The latter must of necessity cover the whole ground of investigation in agricultural science and practice, as recited in the Act of Congress and as heretofore carried out so far as the means at command permitted. The outlying stations, on the contrary, are designed to be essentially "culture stations" only, in which the adaptations of culture plants to the local climates and soils are to be tested systematically, in order to relieve the practical farmer from the necessity of making such trials at his individual and often very heavy expense in unproductive investments, and the results of which after all are not convincing to others and do not become part of public experience.

With this object in view, it is evident that in the selection of locations for such stations the following points should be primarily regarded:

1. Each station should be representative of as large an area of agricultural land as possible, with respect to climatic conditions first of all, and secondly with respect to soil conditions.



2. Agricultural regions of which the adaptations and peculiarities are still uncertain should receive attention first, since it is here that the greatest volume of work remains to be done; while in regions that have been settled up long ago, the trials of individual culture plants that may come into question may be intrusted to intelligent individuals.

This implies, conversely, that when, after a time, which may vary from 10 to 20 or more years, a culture station shall have fulfilled its main objects, it may be dispensed with, or transferred to another locality standing in need of such work. Yet it may also turn out to be desirable to maintain some outlying station or stations permanently, and invest them with additional functions in the prosecution of agricultural experimentation. Under this point of view it would seem to be desirable that the lands occupied should be held in trust, or on lease, rather than in fee simple, by the University.

It is my impression that such tenure of land for the purposes of a culture station can, in most, if not in all cases, be obtained by consent or donation from the owner, with only nominal expense to the institution.

As regards the necessary buildings, the Act provides that a sum not exceeding \$3000 may be expended for buildings and repairs, the first (this) year, but thereafter only \$750 per year shall be so applicable. This provision was evidently intended to prevent the improper use of the fund for extensive buildings, allowing only what is considered absolutely essential, such as dwellings for employees, barn, tool and propagating house, to be defrayed out of the appropriation. This works well enough where, as in the smaller Eastern States, one single station answers all purposes. But where, as in California, at least five stations (besides the central one at Berkeley) will be required to represent even remotely the several agricultural regions, this provision leaves us without the means of providing for their buildings.

From the offers and suggestions already received, I believe that this difficulty can be overcome by inviting subscriptions to defray the cost of needed buildings, in the localities or regions that will be benefited by their establishment. It would manifestly be invidious to allot the whole \$3000 permitted by law to any one favored locality, unless it be the central station at Berkeley. The latter, as you are aware, stands in the most urgent need of buildings that shall properly subserve the uses of the Experiment Station, which at present has neither office, nor collection-room, nor adequate laboratory accommodations. In conformity with this view, I have already submitted to you suggestions and plans by which, supplementing the \$3000 with an appropriate sum from the University fund, a satisfactory building for the use of the station may be constructed, mostly upon foundations already existing. This is really the first need for the successful management of the already complex work, which will become additionally heavy and complicated when the outlying stations shall have been established.

As regards the number and general collocation of these culture stations, I have already, in former reports and communications, outlined my views in the premises. They are based upon the natural agricultural subdivisions of the State, which may be stated as follows:

1. Southern region, from San Diego to Santa Barbara, and inland to the Mojave and Colorado deserts.
2. San Joaquin valley, from the Tejon mountains to Stockton.
3. Sacramento valley, from Stockton northward.
4. Foothills of the Sierra, substantially from Fresno to Tehama county.
5. Coast Range region.

It is impossible to make fewer divisions, and consequently *five outlying culture stations* is the minimum number that can at all represent the State. The Coast Range might be supposed to be represented by the central station at Berkeley, but it is notorious that this is not at all the case. The Berkeley climate represents only a very limited area, directly influenced by the fogs that pour in through the Golden Gate at the time when the maximum heat prevails elsewhere. As a culture station, it is not happily located, and the Coast Range should be otherwise represented. In view of the considerations already set forth above, it appears to me that the extensive and important region lately opened up to settlement by the extension of the Southern Pacific railroad toward San Luis Obispo, along the largest river of the Coast Range, the Salinas, is eminently entitled to consideration, it being a new and apparently most promising field for varied cultures. I submit herewith a proposition looking toward the establishment of a station, on the general basis as above outlined, by a donation of land in trust and the raising of a sum sufficient for the erection of buildings, on the part of Mr. J. V. Webster of Creston, San Luis Obispo county. The land offered is situated within a few miles of the town of Paso Robles, and in my view will be as fairly representative of the culture conditions of the fine agricultural region of the Upper Salinas as could be readily chosen. I therefore respectfully recommend the formal acceptance of Mr. Webster's proposition at the coming meeting of the Board of Regents, and that the expenditure needful for farther equipment and such work as the season will permit, be authorized.

Another most acceptable offer of a similar tenor comes from Senator A. Caminetti and others, offering a tract of land within a few miles (the exact location yet to be determined upon) of Jackson, Amador county. As that county is very nearly centrally located within the Foothill region as above defined, and as personal examination has satisfied me that the soil and climate of the locations of which the choice is offered is as fairly representative of the foothill region at large as any one location that could be selected, I also recommend the acceptance of this offer, it being the only one that has come from that region, and being in every respect a fair one, besides being situated in a community anxious for information as to untried cultures.

I am in receipt of suggestions and offers of co-operation from various other points, notably from Tulare county, from Santa Barbara, (the same as formerly communicated to you), and from the county of Los Angeles. None of these suggestions have as yet taken so definite a form as to call for a recommendation on my part at this time. But in view of the lateness of the season and of the short time remaining within which the appropriation for the present



fiscal year can be expended, I urgently recommend that the power to accept appropriate donations for culture stations, and to take proper action thereon, be delegated to a committee that can be easily called together; since the necessity of awaiting the action of a regular meeting of the Board of Regents would defeat all further progress in the establishment of stations for this season.

I have in view one other station, the establishment of which will involve but little initial or current expense, and which would adequately represent the higher portion of the middle Coast Ranges. I refer to Mount Hamilton, the native vegetation of which shows unexpected possibilities in the way of cultivation at the height of 4000 feet. I have found at this altitude the native grapevine and a growth of oaks and other plants rivaling that of many interior valleys. Apart from the desirableness of thus facilitating the supply of life's necessities to the *personnel* on the mountain, the success of cultures at that elevation would go far to show the latent possibilities of the lower ridges, now mere pasture-grounds. I, therefore, suggest that so soon as the Mount Hamilton domain shall have been turned over to the Regents, operations looking toward at

least a small culture plot be at once begun, so as, if possible, to gain a year's time in actual experience.

It should not be forgotten that besides these new stations and the one at Berkeley, three specially *viticultural* stations, based entirely on private munificence, are already in operation. Two of these are located on opposite sides of the Santa Clara valley (at Cupertino and Mission San Jose), and one at Fresno. If these are maintained and the plans above outlined are carried out, we will have *ten* stations in all to look after. This is a very respectable number, and it is obvious that it cannot be much increased without special strong reasons or, perhaps, additional pecuniary means. I estimate the current expense of maintenance of a general culture station, of 15 to 20 acres, once established and equipped, at between \$2000 and \$2500 per annum; and it is thus easily seen that the limits of the Congressional fund will very nearly have been reached when the present plans are carried into effect.

Respectfully submitted,

E. W. HILGARD,  
Professor of Agriculture.

Berkeley, March 12th.